



Groundwater Contamination and Treatment at Department of Energy Sites

August 2009

Compiled by the Office of Engineering & Technology

Contents

Acronyms	4
Introduction	5
Plume Map Function	6
Plume Assessment Function.....	7
Hanford Site: Plume Map	9
Hanford Site: Plume Assessments.....	10
Idaho National Laboratory: Plume Map	12
Idaho National Laboratory: Plume Assessments.....	13
Lawrence Livermore National Laboratory Site 200 (Main Site): Plume Map	14
Lawrence Livermore National Laboratory Site 200 (Main Site): Plume Assessments.....	15
Lawrence Livermore National Laboratory Site 300: Plume Map	16
Lawrence Livermore National Laboratory Site 300: Plume Assessments	17
Los Alamos National Laboratory: Plume Map	19
Los Alamos National Laboratory: Plume Assessments	20
Moab UMTRA Project: Plume Map	21
Moab UMTRA Project: Plume Assessments	22
Nevada Test Site: Plume Map.....	23
Nevada Test Site: Plume Assessments	24
Oak Ridge Reservation: Plume Map	25
Oak Ridge Reservation: Plume Assessments.....	26
Paducah Gaseous Diffusion Plant: Plume Map.....	27

Paducah Gaseous Diffusion Plant: Plume Assessments	28
Pantex Plant: Plume Map.....	29
Pantex Plant: Plume Assessments	30
Portsmouth Gaseous Diffusion Plant: Plume Map	31
Portsmouth Gaseous Diffusion Plant: Plume Assessments	32
Savannah River Site: Plume Map	33
Savannah River Site: Plume Assessments	34
West Valley Demonstration Project: Plume Map.....	36
West Valley Demonstration Project: Plume Assessments	37

Acronyms

ACL	Alternate Concentration Limit	OU	Operable Unit
ARRA	American Recovery and Reinvestment Act	P&T	Pump and Treat
Be	Beryllium	PBS	Project Baseline Summary
CAU	Corrective Action Unit	PCE	Perchloroethylene
Car. Tet.	Carbon Tetrachloride	pCi/L	Picocurie per Liter
Cd	Cadmium	R&D	Research and Development
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	RCRA	Resource Conservation and Recovery Act
CFA	Central Facilities Areas	RDX	Cyclotrimethylenetrinitramine
Cr	Chromium	ROD	Record of Decision
Cs	Cesium	RTC	Reactor Technology Complex
DCE	Dichloroethylene	RWMC	Radioactive Waste Management Complex
DCGLs	Derived Concentration Guideline Levels	Sr	Strontium
DNAPL	Dense Non-Aqueous Phase Liquids	SVE	Soil Vapor Extraction
DOE	Department of Energy	TAN	Test Area North
ERH	Electrical Resistance Heating	TBD	To Be Determined
ETTP	East Tennessee Technology Park	TBOS	Tetra-butyl-orthosilicate
ESD	Explanation of Significant Difference	TCA	Trichloroethane
FY	Fiscal Year	TCE	Trichloroethylene
GW	Groundwater	Tc	Technetium
ISG	In Situ Grouting	TKEBS	Tetra-kis-2-ethylbutylorthosilicate
HE	High Explosives	TI	Technical Impracticability
Hg	Mercury	UEFPC	Upper East Fork Poplar Creek
I	Iodine	U	Uranium
INTEC	Idaho Nuclear Technology and Engineering Center	UMTRA	Uranium Mill Tailings Remedial Action
MCL	Maximum Concentration Levels	VC	Vinyl Chloride
MNA	Monitored Natural Attenuation	VOC	Volatile Organic Compounds
NA	Not Applicable	WAG	Waste Area Group
NPL	National Priority List	WMA	Waste Management Area

Introduction

The Department of Energy (DOE) has one of the largest groundwater contamination problems and subsequent cleanup responsibilities in the world, in terms of the sheer volume of affected groundwater, number of plumes, range of hydrogeologic settings, and diversity of contaminant types. Plume maps and assessments have been prepared for DOE sites to summarize the nature and extent of groundwater contamination and to identify approaches being taken to remediate the contaminated groundwater.

This document provides DOE Program/Project Managers, senior management, and other interested parties with a snapshot in time of the status of major groundwater contamination and remedial approaches across the DOE Complex.

It also provides the Program/Project Managers with a “quick look” tool that sufficiently describes the plumes and helps in the decision making for setting priorities and allocating resources for remediation.

The document catalogs assessments of 94 currently identified plumes at thirteen DOE sites. This edition adds an additional twenty plumes and five sites over the August 2008 edition and it also identifies remedial activities that will benefit from American Recovery and Reinvestment Act (ARRA) funding.

DOE sites chosen for inclusion in the initial August 2007 edition were generally the larger DOE sites with groundwater contamination. In subsequent editions, additional DOE sites have been added in order to present a more inclusive “snapshot” of the complete DOE complex.

The plume maps and assessments sheets for this document are updated annually.

Plume Map Function

The plume maps provide a high level visual representation of groundwater information at each site. The components and use of the plume maps are listed below:

- ☐ Illustrates location and extent of groundwater contamination
- ☐ Lists major groundwater contaminants
- ☐ Summarizes major remedial activities
- ☐ Identifies remedial research projects
- ☐ Identifies ARRA funded activities

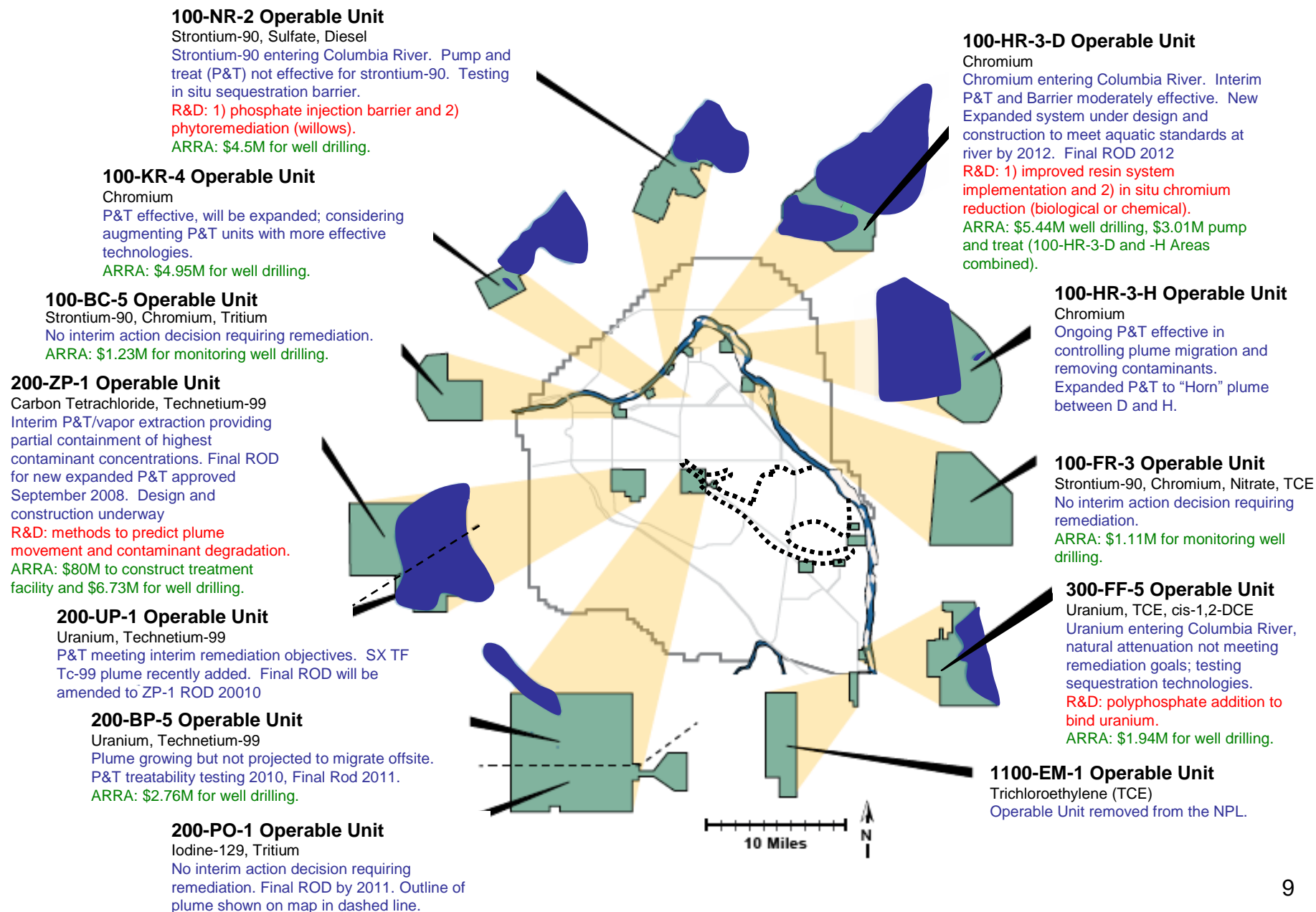
Plume Assessment Function

The plume assessment function provides a “Consumer Report” style depiction of groundwater contamination and treatment on all the plumes identified at a particular site. The components and use of the assessments are listed below:








































- Contains information on contaminated groundwater plumes, categorized by:
 - Site
 - Contractor
 - Plume/Area
 - PBS #
 - Major Contaminants (that required, currently require, or may require remediation)
 - Current Plume Size (greater than 320 acres, 40 to 320 acres, or less than 40 acres)
 - Source (active, controlled, or not present)
 - Plume Status
 - Red—contaminants offsite or projected to migrate offsite,
 - Yellow—plume expanding but not expected to migrate offsite, or
 - Green—plume static or shrinking in size.




- Regulatory Status (assessment ongoing, remedial approach proposed, or decision document in place)
- Treatment Status
 - Red—remedial approaches are not performing as identified in decision documents,
 - Yellow—remedial approaches are not performing optimally, or
 - Green—remedial approaches are performing as identified in decision documents.
- Assists in identifying and prioritizing technology needs and external review needs.
- Identifies where potential remediation effort improvements can be made—turning Red and Yellow designations into Green designations.

Hanford Site: Plume Map









Hanford Site: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Hanford Site	Plateau Remediation Contractor	100-BC-5	RL-0030	Sr, Cr, Tritium			Red		NA	No active treatment required at this time.
Hanford Site	Plateau Remediation Contractor	100-FR-3	RL-0030	Sr, Cr			Green		NA	No active treatment required at this time.
Hanford Site	Plateau Remediation Contractor	100-HR-3-D/ 100-D North	RL-0030	Cr			Red		Yellow	Cr is entering the Columbia River. P&T has been somewhat effective in controlling migration and removing Cr. Larger treatment facilities are being designed and installed to increase system performance.
Hanford Site	Plateau Remediation Contractor	100-HR-3-D/ 100-D South	RL-0030	Cr			Red		Yellow	Cr is entering the Columbia River. The selected remedy, an in situ barrier, has had some breakthrough. Barrier mending and other alternative approaches being investigated. Large P&T system being constructed to work in conjunction with barrier.
Hanford Site	Plateau Remediation Contractor	100-HR-3/ 100-H	RL-0030	Cr			Green		Green	P&T has been effective in controlling plume migration and removing Cr.
Hanford Site	Plateau Remediation Contractor	100-KR-4	RL-0030	Cr			Red		Yellow	P&T has been effective. Expanded System has been constructed and is operating. Also need to develop alternative treatment methods to supplement P&T.
Hanford Site	Plateau Remediation Contractor	100-N	RL-0030	Sulfate, Diesel			Red		NA	Diesel required to be removed from wells.
Hanford Site	Plateau Remediation Contractor	100-NR-2/ 100-N	RL-0030	Sr			Red		Yellow	Sr is entering the Columbia River. P&T has stabilized plume migration but has not significantly reduced contaminant levels. The site is now testing apatite sequestration of the Sr and phytoremediation.
Hanford Site	Plateau Remediation Contractor	200-BP-5	RL-0030	Tc, U			Yellow		NA	The plume is growing but not projected to migrate offsite. Treatability and pump tests will be conducted in 2010 and Final ROD will be issued in 2011
Hanford Site	Plateau Remediation Contractor	200-PO-1	RL-0030	I, Tritium			Red		Green	The plume has been shrinking in size naturally and no active remediation is expected. Migration of tritium into the Columbia River is currently only slightly above MCLs. A final ROD will be released in 2011.
Hanford Site	Plateau Remediation Contractor	200-UP-1	RL-0030	Tc, U			Green		Green	Interim P&T is operating and recent ESD has added Tc-99 plume at SX Tank Farm. UP-1 final ROD will be added to ZP-1 ROD
Hanford Site	Plateau Remediation Contractor	200-ZP-1	RL-0030	Car. Tet.			Yellow		Yellow	Interim P&T operations have provided partial containment of high concentration portion of plume at top of the aquifer. Final ROD for new expanded system approved September 2008. New P&T system under construction.
Hanford Site	Plateau Remediation Contractor	300-FF-5/ 300 Area U Plume	RL-0030	U			Red		Red	U is entering the Columbia River. The selected remedy, natural attenuation, did not work and the site is investigating other approaches.

Site	Contractor	Plume/Area	PBS#	Major Contami- nants	Current Plume Size	Source	Plume Status	Regu- latory Status	Treat- ment Status	Comments
Hanford Site	Plateau Remediation Contractor	1100	RL- 0030	TCE			Green		Green	Plume taken off the NPL.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.




Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

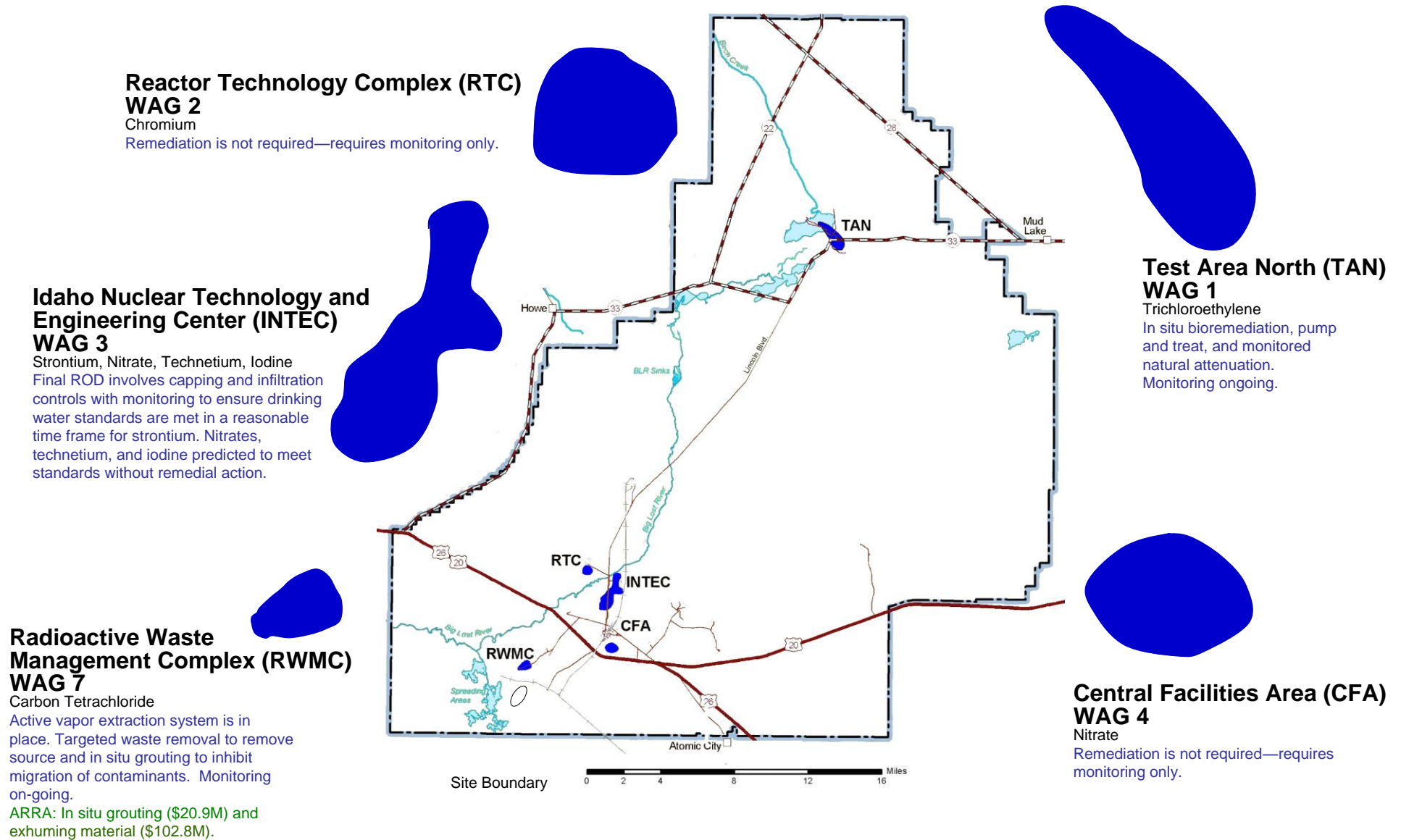
Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.

MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).

Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).

Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.

Idaho National Laboratory: Plume Map



(Note: Plume details not to scale.)

Idaho National Laboratory: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Idaho National Laboratory	CWI	WAG 1	ID-0030	PCE, TCE, DCE, Sr-90, Cs-137			Green		Green	In situ bioremediation for "hot spot," pump and treat for medial zone, monitored natural attenuation for distal portion.
Idaho National Laboratory	CWI	WAG 2	ID-0030	Cr			Green		Green	Remediation is not required—continuous monitoring required and ongoing.
Idaho National Laboratory	CWI	WAG 3	ID-0030	Sr-90, Nitrate, Tc-99, I-129			Green		Green	The remediation action identified by the ROD is capping and infiltration controls with monitoring to ensure drinking water standards are met in a reasonable timeframe for Sr-90, nitrate, Tc-99, and I-129.
Idaho National Laboratory	CWI	WAG 4	ID-0030	Nitrate			Green		Green	Remediation is not required—continuous monitoring required and ongoing.
Idaho National Laboratory	CWI	WAG 7	ID-0030	Car. Tet.			Green		Green	Active vapor extraction system is in place. Targeted waste removal to remove source and in situ grouting to inhibit migration of contaminants. Monitoring on-going.

Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.

Plume size (Current): = Greater than 320 acres, = 40 to 320 acres, = Less than 40 acres

Source: = Active, = Controlled, = Not Present

Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.

MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).

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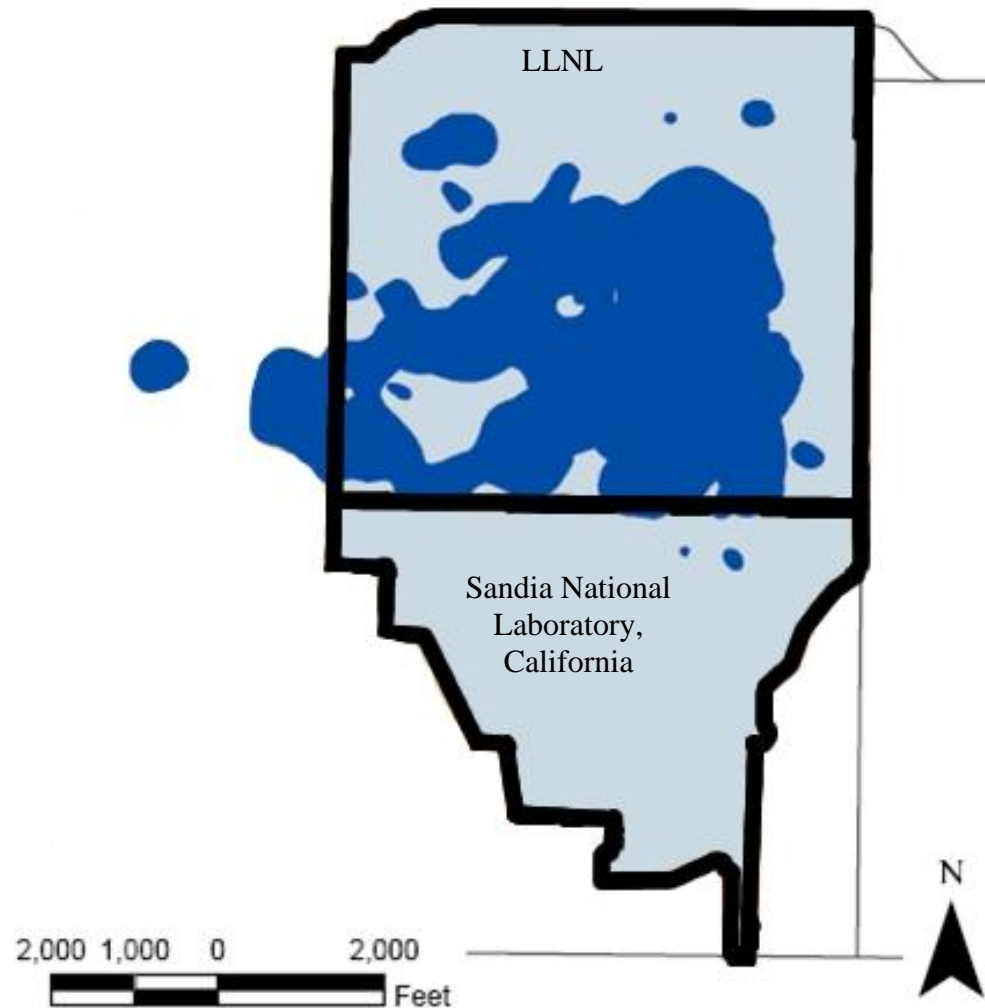
Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.

Lawrence Livermore National Laboratory Main Site (Site 200): Plume Map




Main Site Plume

Co-mingled VOCs




P&T is effective at hydraulically containing and treating the distal portions of the plume, while hydraulically isolating the contaminants in the source areas. Soil vapor extraction and dual extraction are being used to remove contaminants in the source areas.






Lawrence Livermore National Laboratory Main Site (Site 200): Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
LLNL Site 200 (Main Site)	LLNS	Main Site	VL-LLNL-0030	PCE, TCE, hexavalent chromium, tritium			Red		Green	P&T effective for systematically cleaning up and hydraulically containing plumes migrating towards the site boundary. Enhanced source area remediation technologies (bioremediation, subsurface heating, and mechanical fracturing) being evaluated and field-tested to determine if full-scale implementation is warranted.

Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.




Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.

MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).

Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).

Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.

Lawrence Livermore National Laboratory Site 300: Plume Map

Building 865

The regulatory agencies are evaluating the CERCLA pathway.

Pit 7 Complex (OU5)

Engineered landfill caps were installed on the Pit 4 and 7 Landfills in 1992. A hydraulic drainage diversion system was installed in 2008 to control contaminant sources by preventing groundwater from rising into the landfills. A groundwater extraction and treatment system is under construction. Risk & Hazard Management, monitoring, and MNA are ongoing.

Building 851 (OU8)

Remediation is not required. Risk & Hazard Management and monitoring are ongoing.

Building 845/Pit 9 Landfill (OU8)

Remediation is not required. Risk & Hazard Management and monitoring are ongoing.

Building 854 (OU6)

Risk & Hazard Management, monitoring, and groundwater and soil vapor extraction and treatment are ongoing. PCB-, dioxin-, and furan-contaminated soil was excavated in 2005.

Pit 6 Landfill (OU3)

An engineered landfill cap was installed in 1997 to prevent contaminant releases. Risk & Hazard Management, monitoring, and MNA are ongoing.

Pit 2 Landfill (OU8)

Remediation is not required. Risk & Hazard Management and monitoring are ongoing.

Building 801/Pit 8 Landfill (OU8)

Remediation is not required. Risk & Hazard Management and monitoring are ongoing.

Building 850 (OU5)

Risk & Hazard Management, monitoring, and MNA are ongoing. Excavation, solidification, and consolidation of PCP-, dioxin-, and furan-contaminated soil is being conducted as a non-time-critical removal action in 2009.

Building 812 (OU9)

An RI/FS is in process.

Building 832 (OU7)

Risk & Hazard Management, monitoring, MNA, and groundwater and soil vapor extraction and treatment are ongoing.

Building 825-HE Burn Pit (OU4)

Perchlorate above MCL at one well

Building 834 (OU2)

Risk & Hazard Management, monitoring, and groundwater and soil vapor extraction and treatment are ongoing.

Building 833 (OU8)

Remediation is not required. Risk & Hazard Management and monitoring are ongoing.

Building 830 (OU7)

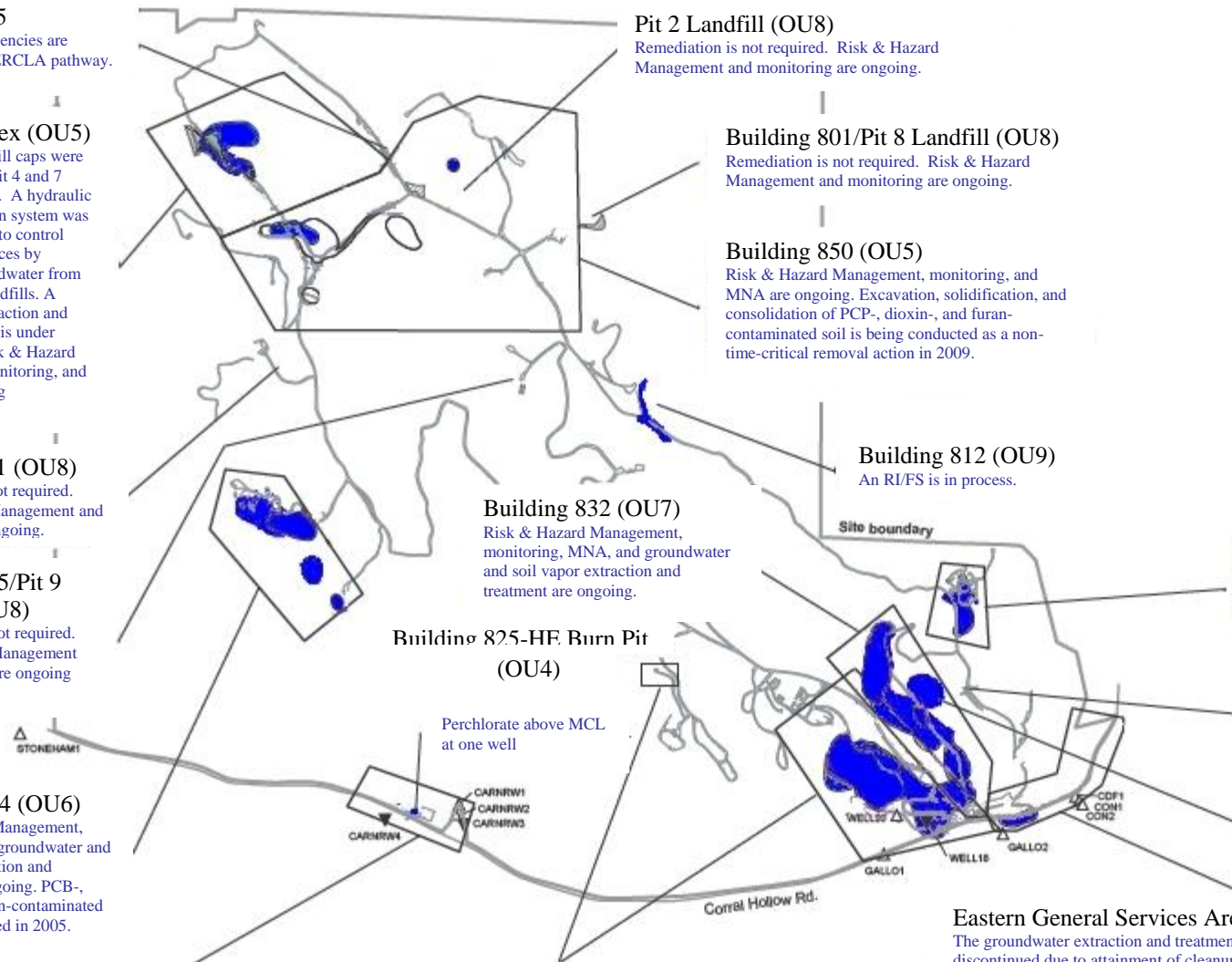
Risk & Hazard Management, monitoring, MNA, and groundwater and soil vapor extraction and treatment are ongoing.

Eastern General Services Area (OU1)











































The groundwater extraction and treatment occurred from 1991 to 2007 when it was discontinued due to attainment of cleanup standards. Post-system shutdown monitoring for contaminant rebound is ongoing.







Central General Services Area (OU1)

Monitoring and groundwater and soil vapor extraction and treatment are ongoing.









Lawrence Livermore National Laboratory Site 300: Plume Assessments




Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
LLNL Site 300	LLNS	CGSA/OU1	VL-LLNL-0031	VOCs			Red		Green	Groundwater and soil vapor extraction and treatment were selected in the 1997 ROD.
LLNL Site 300	LLNS	EGSA/OU1	VL-LLNL-0031	VOCs			Green		Green	The groundwater treatment was discontinued in 2007 due to the attainment of cleanup standards.
LLNL Site 300	LLNS	834/OU2	VL-LLNL-0031	VOCs, TBOS/TKEBS, Nitrate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, and groundwater and soil vapor extraction and treatment as the selected remedy.
LLNL Site 300	LLNS	Pit 6/OU3	VL-LLNL-0031	Tritium, VOCs, Nitrate, Perchlorate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, and MNA as the selected remedy.
LLNL Site 300	LLNS	HEPA/OU4	VL-LLNL-0031	VOCs, HE, Nitrate, Perchlorate			Yellow		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, MNA, and groundwater extraction and treatment as the selected remedy.
LLNL Site 300	LLNS	850/OU5	VL-LLNL-0031	Tritium, U, Nitrate, Perchlorate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, and MNA as the selected remedy.
LLNL Site 300	LLNS	Pit 7/OU5	VL-LLNL-0031	Tritium, VOCs, U, Nitrate, Perchlorate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, MNA, groundwater extraction and treatment, and source control as the selected remedy.
LLNL Site 300	LLNS	854/OU6	VL-LLNL-0031	VOCs, Nitrate, Perchlorate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, and groundwater and soil vapor extraction and treatment as the selected remedy.
LLNL Site 300	LLNS	830/OU7	VL-LLNL-0031	VOCs, Nitrate, Perchlorate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, MNA, and groundwater and soil vapor extraction and treatment as the selected remedy.
LLNL Site 300	LLNS	832/OU7	VL-LLNL-0031	VOCs, Nitrate, Perchlorate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management, Monitoring, MNA, and groundwater and soil vapor extraction and treatment as the selected remedy.
LLNL Site 300	LLNS	851/OU8	VL-LLNL-0031	U			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management and Monitoring as the selected remedy.
LLNL Site 300	LLNS	833/OU8	VL-LLNL-0031	VOCs			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management and Monitoring as the selected remedy.
LLNL Site 300	LLNS	801/OU8	VL-LLNL-0031	VOCs, Nitrate, Perchlorate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management and Monitoring as the selected remedy.
LLNL Site 300	LLNS	Pit 2/OU8	VL-LLNL-0031	Nitrate			Green		Green	The Site-Wide 2008 ROD selected Risk & Hazard Management and Monitoring as the selected remedy.




Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
LLNL Site 300	LLNS	812/OU9	VL-LLNL-0031	VOCs, U, HE, Nitrate, Perchlorate			Green		NA	RI/FS in process.
LLNL Site 300	LLNS	865	VL-LLNL-0031	VOCs			Green		NA	The regulatory agencies are evaluating the CERCLA pathway.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.

Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

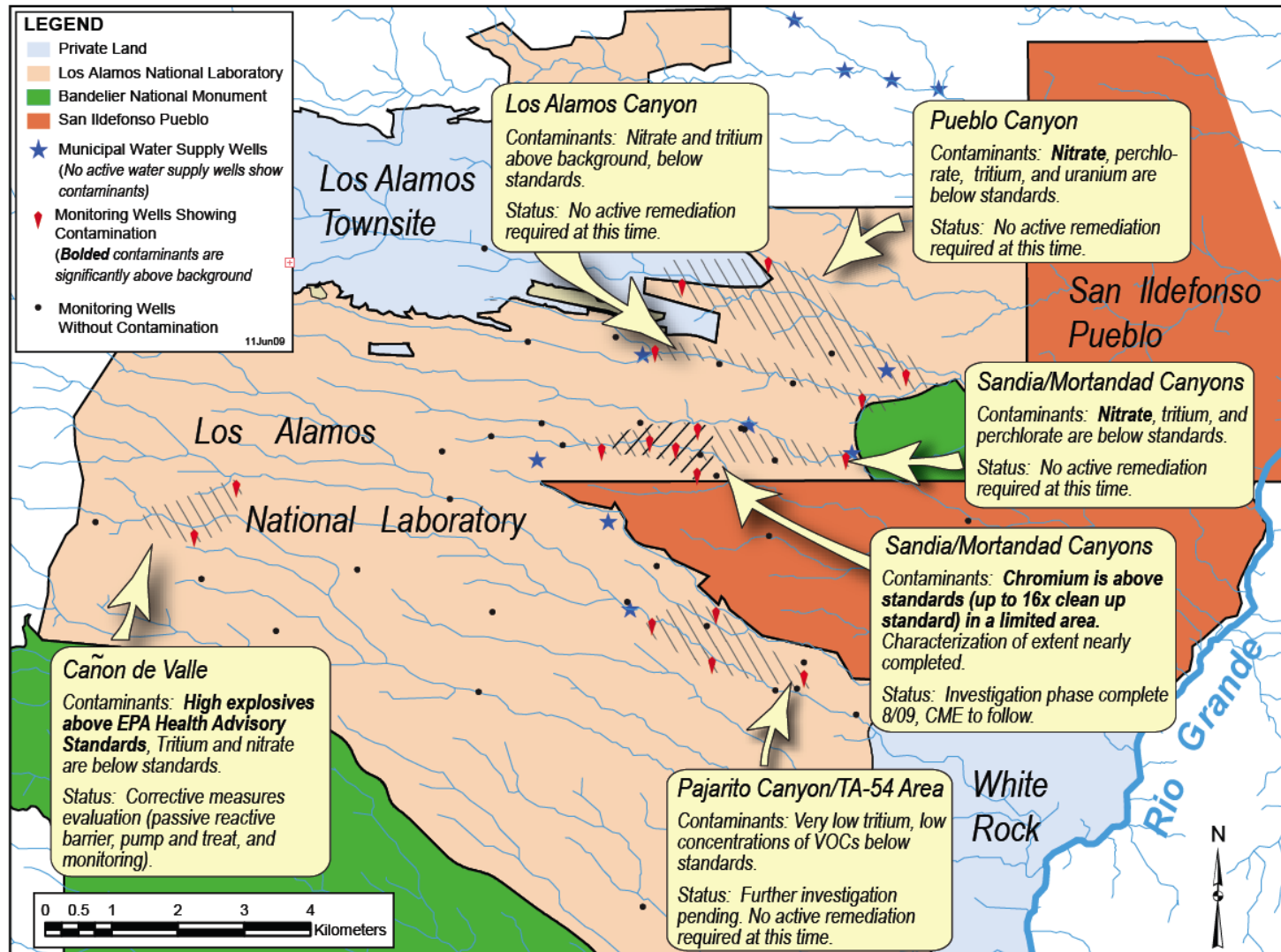
Source:  = Active,  = Controlled,  = Not Present

Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.
MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).














Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).

Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.




Los Alamos National Laboratory: Plume Map









Los Alamos National Laboratory: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Los Alamos National Laboratory	Los Alamos National Security	Sandia/Mortandad Canyon West Area	LANL-0030	Chromium			Green		NA	Chromium is 16 times above State regulatory cleanup standards and 8 times above EPA MCL in limited area. Extent of plume likely delineated, but final south determination is pending. Investigation report due to regulator in August 2008.
Los Alamos National Laboratory	Los Alamos National Security	Cañon De Valle Area	LANL-0030	Explosives (RDX,TNT), Tritium, Nitrate	NA		Green		NA	Plume extent not yet fully delineated. Explosives are above EPA Health Advisory Standards. Other contaminants are above background but below regulatory cleanup standards. Corrective measures, passive reactive barrier, pump and treat, and monitored natural attenuation are being evaluated.
Los Alamos National Laboratory	Los Alamos National Security	Los Alamos Canyon Area	LANL-0030	Nitrate, Tritium	NA		NA		NA	Plume is limited and static. Contaminants are above background but below regulatory cleanup standards. No active remediation required at this time.
Los Alamos National Laboratory	Los Alamos National Security	Pajarito Canyon/TA-54 Area	LANL-0030	Tritium, VOCs	NA		NA		NA	Trace concentrations of tritium have been detected in one well. Low levels of VOCs are also present in several wells. Plume extent not yet fully delineated. Contaminants are above background but below regulatory cleanup standards. Further characterization is pending to confirm presence and extent.
Los Alamos National Laboratory	Los Alamos National Security	Pueblo Canyon Area	LANL-0030	Nitrate, Tritium, Uranium, Perchlorate	NA		NA		NA	Plume is limited and static. Contaminants are above background but below regulatory cleanup standards. No active remediation required at this time.
Los Alamos National Laboratory	Los Alamos National Security	Sandia/Mortandad Canyon East Area	LANL-0030	Nitrate, Tritium, Perchlorate	NA		NA		NA	Plume is limited and static. Contaminants are above background but below regulatory cleanup standards. No active remediation required at this time.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.




Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

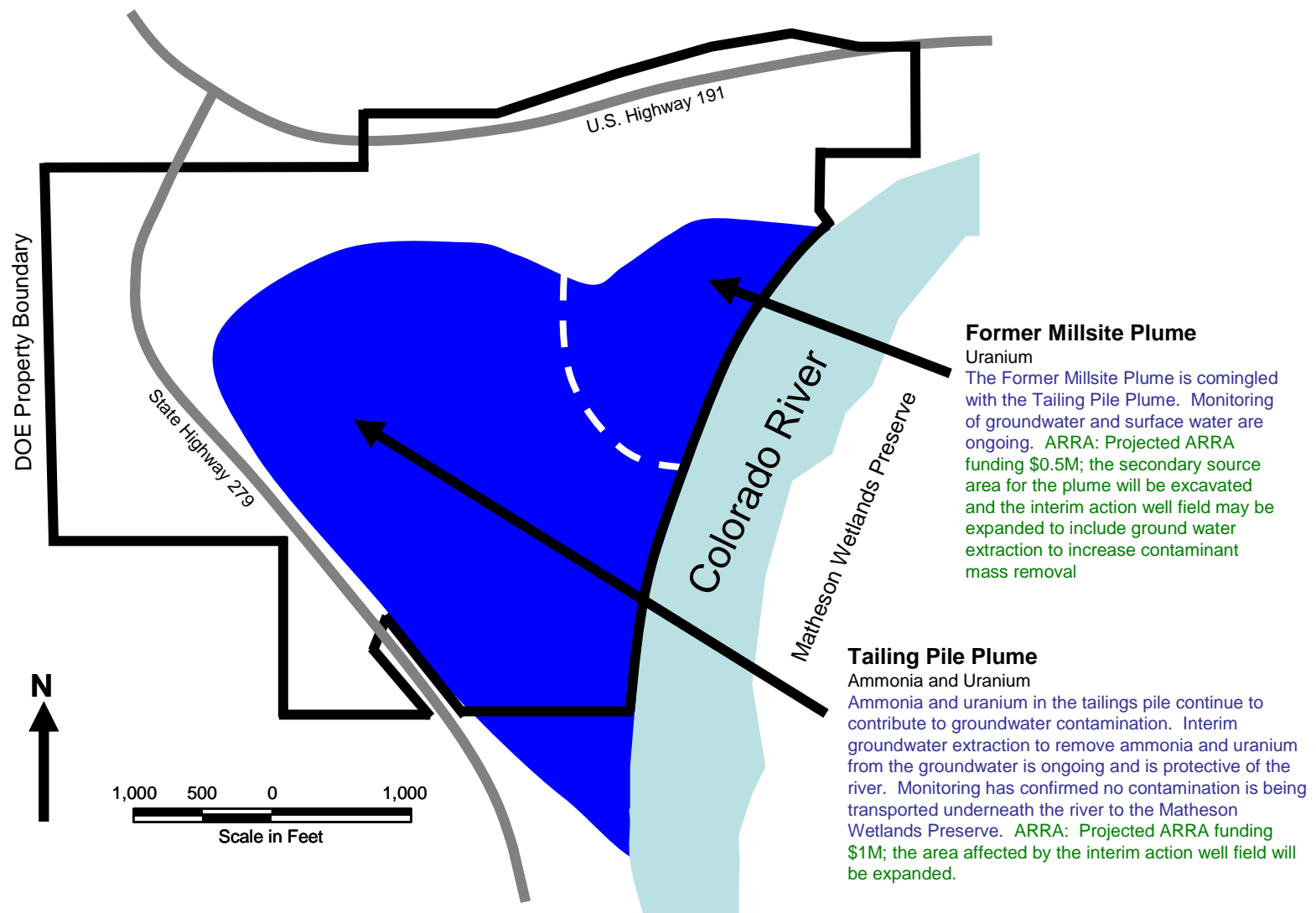
Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.

MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).







Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).

Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.




Moab UMTRA Project: Plume Map






Moab UMTRA Project: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Moab Site	S&K Aerospace	Tailings Pile/ 150 acres	CBC-Moab-0031	Uranium, Ammonia			Red		Green	Interim action (groundwater extraction) protects contaminants from entering Colorado River above negotiated levels. Groundwater is not potable due to natural high total dissolved solids. Contamination slightly above MCLs has migrated offsite.
Moab Site	S&K Aerospace	Former Millsite/ 35 acres	CBC-Moab-0031	Uranium			Green		NA	Until final corrective action for groundwater is determined, no active treatment is being performed. Contaminants not entering Colorado River above negotiated levels. Groundwater is not potable due to natural high total dissolved solids.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.

Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

Plume Status: Red—Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, Yellow—Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, Green—Plume is static or shrinking in size.

MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).

Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).

Treatment Status: Red—Remedial approaches are not performing as identified in Decision Documents, Yellow—Remedial approaches are not performing optimally (as identified in Decision Documents), Green—Remedial approaches are performing as identified in Decision Documents.

Nevada Test Site: Plume Map

Pahute Mesa CAU (Western and Central)

43 radionuclides; primarily tritium, C-14, Cl-36, I-129, Pu-239, Tc-99

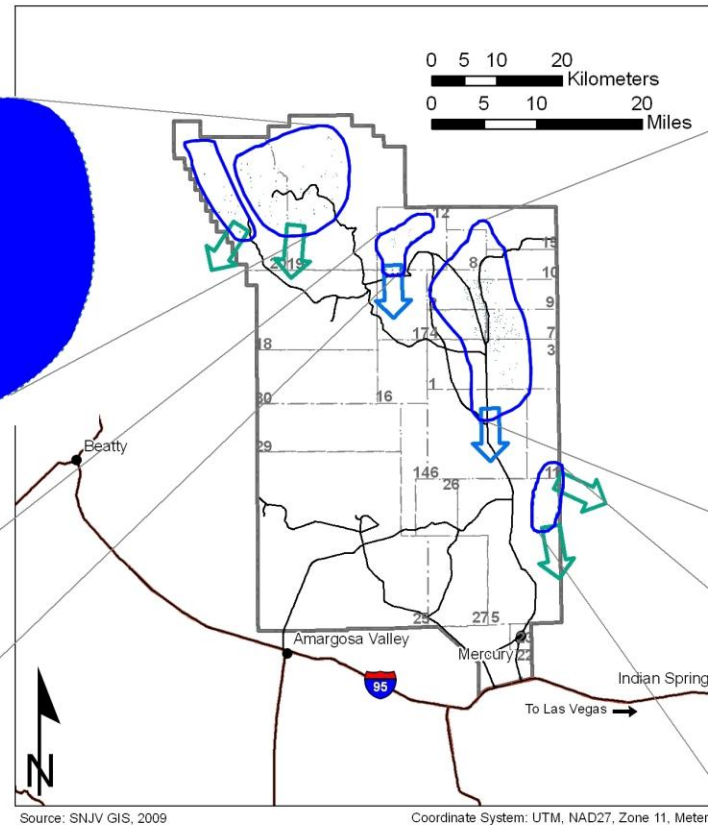
Closure in place with long term monitoring and institutional control; regulatory metric is the probability of exceeding SDWA.

ARRA: well drilling (\$12.1 M)

Yucca Flat CAU

43 radionuclides; primarily tritium, C-14, Cl-36, I-129, Tc-99

Closure in place with long term monitoring and institutional control; regulatory metric is the probability of exceeding SDWA.



Ranier Mesa Shoshone Mountain CAU

43 radionuclides; primarily tritium, C-14, Cl-36, I-129, Tc-99

Closure in place with long term monitoring and institutional control; regulatory metric is the probability of exceeding SDWA.
















Frenchman Flat CAU

43 radionuclides; tritium, C-14, Cl-36, I-129, Tc-99




Closure in place with long term monitoring and institutional control; regulatory metric is the probability of exceeding SDWA.




- UGTA CAU Boundary
- NTS Boundary
- Inferred Groundwater Flow Direction based on Regional Flow Model
- ↗ Inferred Groundwater Flow Direction based on CAU-Scale Flow and Transport Studies

Nevada Test Site: Plume Assessments




Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
NTS	SNJV	Central Pahute Mesa	VL-NV-0030	H-3, C-14, Cl-36, I-129, Pu-239, Tc-99			Yellow		NA	61 Nuclear Tests within 100 m of the water table.
NTS	SNJV	Frenchman Flat	VL-NV-0030	H-3, C-14, Cl-36, I-129, Tc-99			Red		NA	10 Nuclear Tests within 100 m of the water table.
NTS	SNJV	Western Pahute Mesa	VL-NV-0030	H-3, C-14, Cl-36, I-129, Pu-239, Tc-99			Red		NA	18 Nuclear Tests within 100 m of the water table.
NTS	SNJV	Yucca Flat	VL-NV-0030	H-3, C-14, Cl-36, I-129, Tc-99			Yellow		NA	170 Nuclear Tests within 100 m of the water table.
NTS	SNJV	Rainier Mesa	VL-NV-0030	H-3, C-14, Cl-36, I-129, Tc-99			Yellow		NA	28 Nuclear Tests within perched water zone.

Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.

Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

Plume Status: Red—Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, Yellow—Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, Green—Plume is static or shrinking in size.
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Treatment Status: Red—Remedial approaches are not performing as identified in Decision Documents, Yellow—Remedial approaches are not performing optimally (as identified in Decision Documents), Green—Remedial approaches are performing as identified in Decision Documents.

Oak Ridge Reservation: Plume Map

ETTP 1070-A

Trichloroethylene
Source removal followed by
monitored natural attenuation with
land use controls being considered.

ETTP K-27/K-29

Dichloroethylene,
Trichloroethylene, Vinyl
Chloride, Chromium
Considering monitored
natural attenuation with
land use controls.

ETTP Mitchell Branch/ Admin Area

Dichloroethylene, Trichloroethane,
Trichloroethylene, Technetium
Remedial action did not perform as
anticipated. Considering technical
impracticability waiver. VOC
treatability study ongoing.

West Bethel Valley

Strontium
Contain and monitor. Cap source
and divert up gradient water.
ARRA: Additional monitoring wells
funded.

Melton Valley

Trichloroethylene, Cobalt, Strontium, Technetium, Uranium
Completed Interim Record of Decision remedy. Final decision in 2015.

Bear Creek Valley

Perchloroethylene, Dichloroethylene, Trichloroethylene,
Cadmium, Uranium, Technetium, Nitrates
The reactive barrier did not perform as expected.
R&D: the DOE Office of Science is investigating
immobilization of uranium.

Y-12 UEFPC

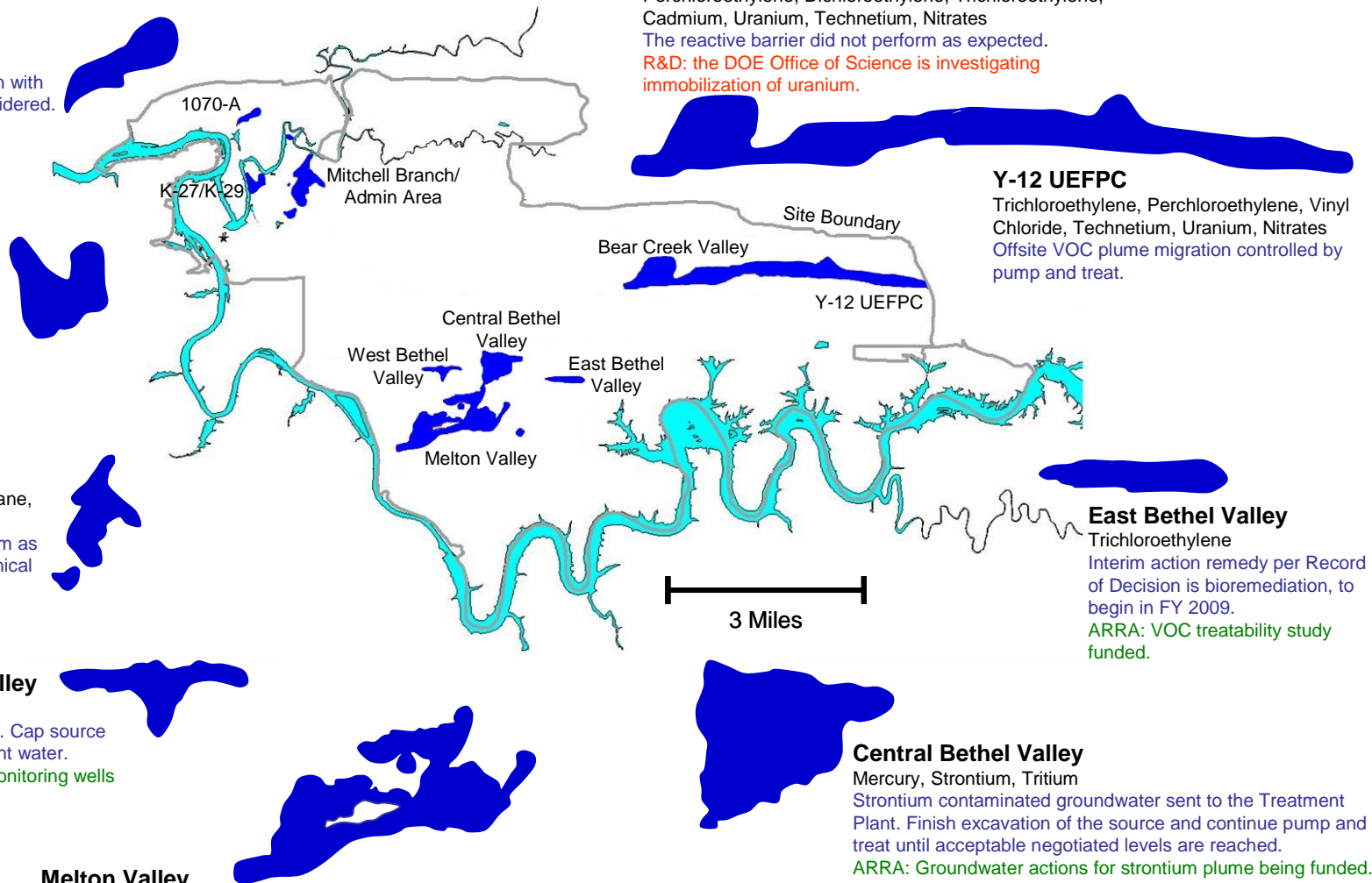
Trichloroethylene, Perchloroethylene, Vinyl
Chloride, Technetium, Uranium, Nitrates
Offsite VOC plume migration controlled by
pump and treat.

East Bethel Valley

Trichloroethylene
Interim action remedy per Record
of Decision is bioremediation, to
begin in FY 2009.
ARRA: VOC treatability study
funded.




























Central Bethel Valley

Mercury, Strontium, Tritium
Strontium contaminated groundwater sent to the Treatment
Plant. Finish excavation of the source and continue pump and
treat until acceptable negotiated levels are reached.
ARRA: Groundwater actions for strontium plume being funded.









(Note: Plume details not to scale.)

Oak Ridge Reservation: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Oak Ridge Reservation	Bechtel Jacobs	Bear Creek Valley	OR-0041	PCE,DCE, TCE, Cd, U, Tc, Nit.			Yellow		Red	The reactive barrier did not perform as expected. R&D: the DOE Office of Science is investigating iodization of the U.
Oak Ridge Reservation	Bechtel Jacobs	Central Bethel Valley	OR-0042	Hg, Sr, Tritium			Yellow		Green	Sr contaminated GW sent to the Central Treatment Plant. Finish excavation of the source and continue P&T until acceptable negotiated levels are reached. Early groundwater actions to improve plume containment funded by ARRA.
Oak Ridge Reservation	Bechtel Jacobs	East Bethel Valley	OR-0042	TCE			Yellow		NA	Remedy is bioremediation per ROD for interim actions. Interim actions to begin in FY 2009. VOC treatability study funded by ARRA.
Oak Ridge Reservation	Bechtel Jacobs	ETTP 1070-A	OR-0040	TCE			Yellow		Green	Source removal. Considering MNA. No risks.
Oak Ridge Reservation	Bechtel Jacobs	ETTP K-27/K-29	OR-0040	DCE, TCE, VC, Cr			Yellow		NA	Considering MNA. No current or future risks identified.
Oak Ridge Reservation	Bechtel Jacobs	ETTP Mitchell Branch/Admin Area	OR-0040	DCE, TCA, TCE, Tc			Yellow		Yellow	Remedial action did not perform as anticipated. No actions have been identified that can succeed. Considering TI Waiver for DNAPLs in the fractured bedrock. Conditions did not deteriorate upon cessation of the remedial action. VOC treatability study ongoing
Oak Ridge Reservation	Bechtel Jacobs	Melton Valley	OR-0042	TCE, Co, Sr, Tc, U			Yellow		Green	Performance of hydraulic containment and seepage capture and containment exceed ROD requirements. Final decision in 2015.
Oak Ridge Reservation	Bechtel Jacobs	West Bethel Valley	OR-0042	Sr			Yellow		NA	Contain and monitor. Cap and divert up gradient water. Additional groundwater monitoring well installation funded by ARRA.
Oak Ridge Reservation	Bechtel Jacobs	Y-12 UEFPC	OR-0041	TCE, PCE, VC, Tc, U, Nitrates			Green		Green	Offsite VOC plume migration is controlled by P&T.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.

Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

Plume Status: **Red**—Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, **Yellow**—Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, **Green**—Plume is static or shrinking in size.

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Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).

Treatment Status: **Red**—Remedial approaches are not performing as identified in Decision Documents, **Yellow**—Remedial approaches are not performing optimally (as identified in Decision Documents), **Green**—Remedial approaches are performing as identified in Decision Documents.

Paducah Gaseous Diffusion Plant: Plume Map

Northwest Plume

Trichloroethylene, Technetium-99

Alternate water supply provided to residents. Pump and treat ongoing since 1995. Potential plume shift may have reduced the effectiveness at northern extraction points.

R&D: Enzyme probe and carbon isotope utilized to positively identify trichloroethylene biodegradation in an aerobic environment.

Northeast Plume

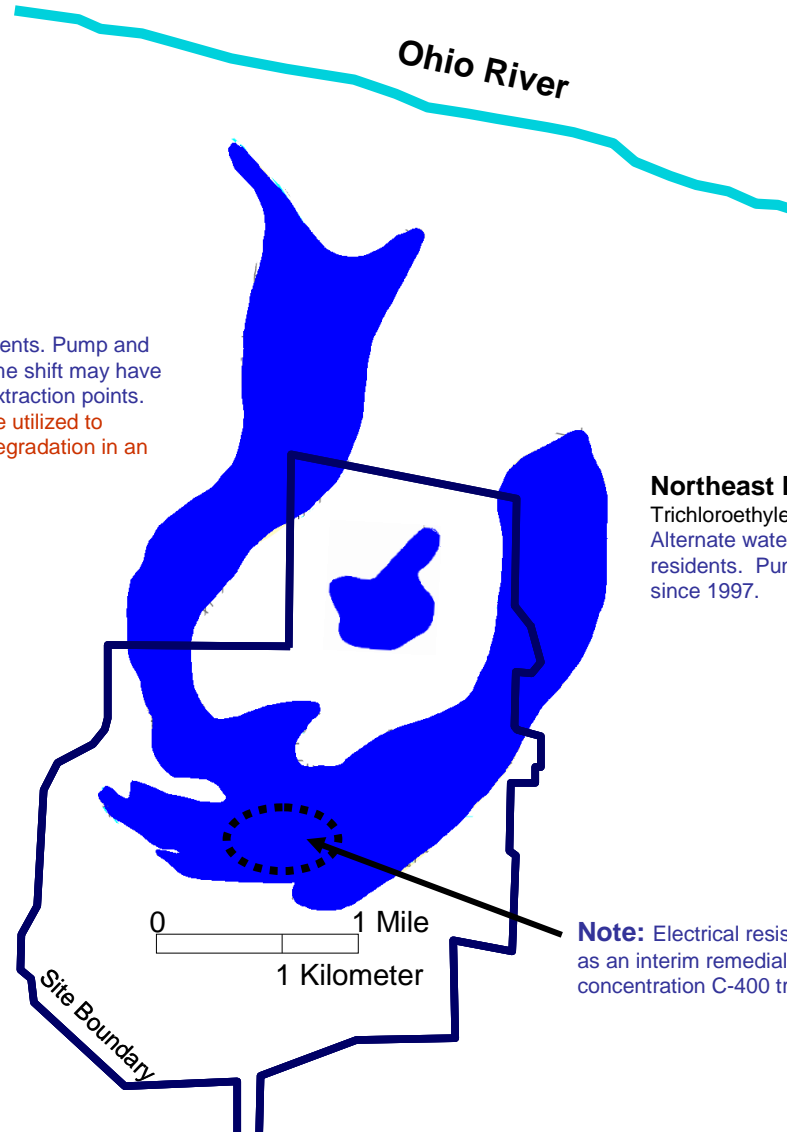
Trichloroethylene, Technetium-99

Alternate water supply provided to residents. Pump and treat ongoing since 1997.

Southwest Plume










Trichloroethylene,
Technetium-99

Feasibility study ongoing to evaluate remedial alternatives.









Note: Electrical resistive heating under construction as an interim remedial action for the high concentration C-400 trichloroethylene source area.




Paducah Gaseous Diffusion Plant: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Paducah Plant	Paducah Remediation Services	NE	PA-0040	TCE Tc			Red		Green	Pump & treat interim action to control high concentration portion of plume has attained remedial objective. Current and future Tc concentrations, a contaminant defining the plume, not expected to exceed the current MCL (900 pCi/L) in offsite areas.
Paducah Plant	Paducah Remediation Services	NW	PA-0040	TCE Tc			Red		Yellow	Plume shift has reduced pump & treat effectiveness. Pump & treat optimization under development. Primary DNAPL source control action in design phase. Current and future Tc concentrations not expected to exceed MCL in offsite areas.
Paducah Plant	Paducah Remediation Services	SW	PA-0040	TCE Tc			Yellow		NA	Plume expansion possibly being attenuated by natural and anthropogenic recharge; however, additional monitoring needed to adequately determine down-gradient extent of plume. Contaminant concentrations not expected to exceed MCLs in offsite areas.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.




Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

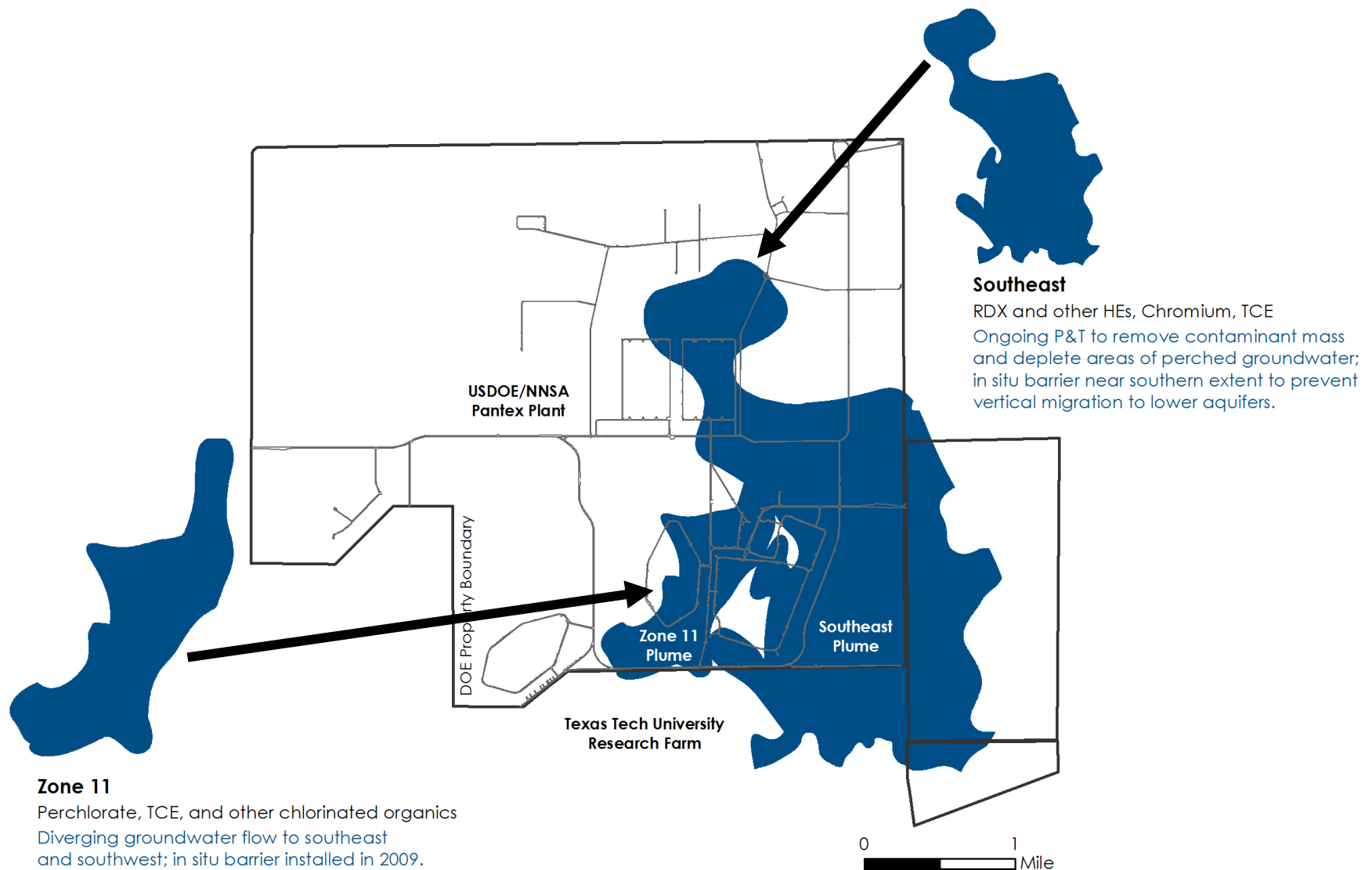
Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.

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


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Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.




Pantex Plant: Plume Map






Pantex Plant: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Pantex Plant	B&W Pantex	Southeast	VL-PX-0030	RDX and other HEs, Chromium, TCE			Red		Green	Ongoing P&T to remove contaminant mass and deplete areas of perched groundwater; in situ bioremediation barrier near southern extent to prevent vertical migration to lower aquifers.
Pantex Plant	B&W Pantex	Zone 11	VL-PX-0030	Perchlorate, TCE			Red		Green	Diverging groundwater flow to southeast and southwest; in situ bioremediation barrier installed in 2009.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.




Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

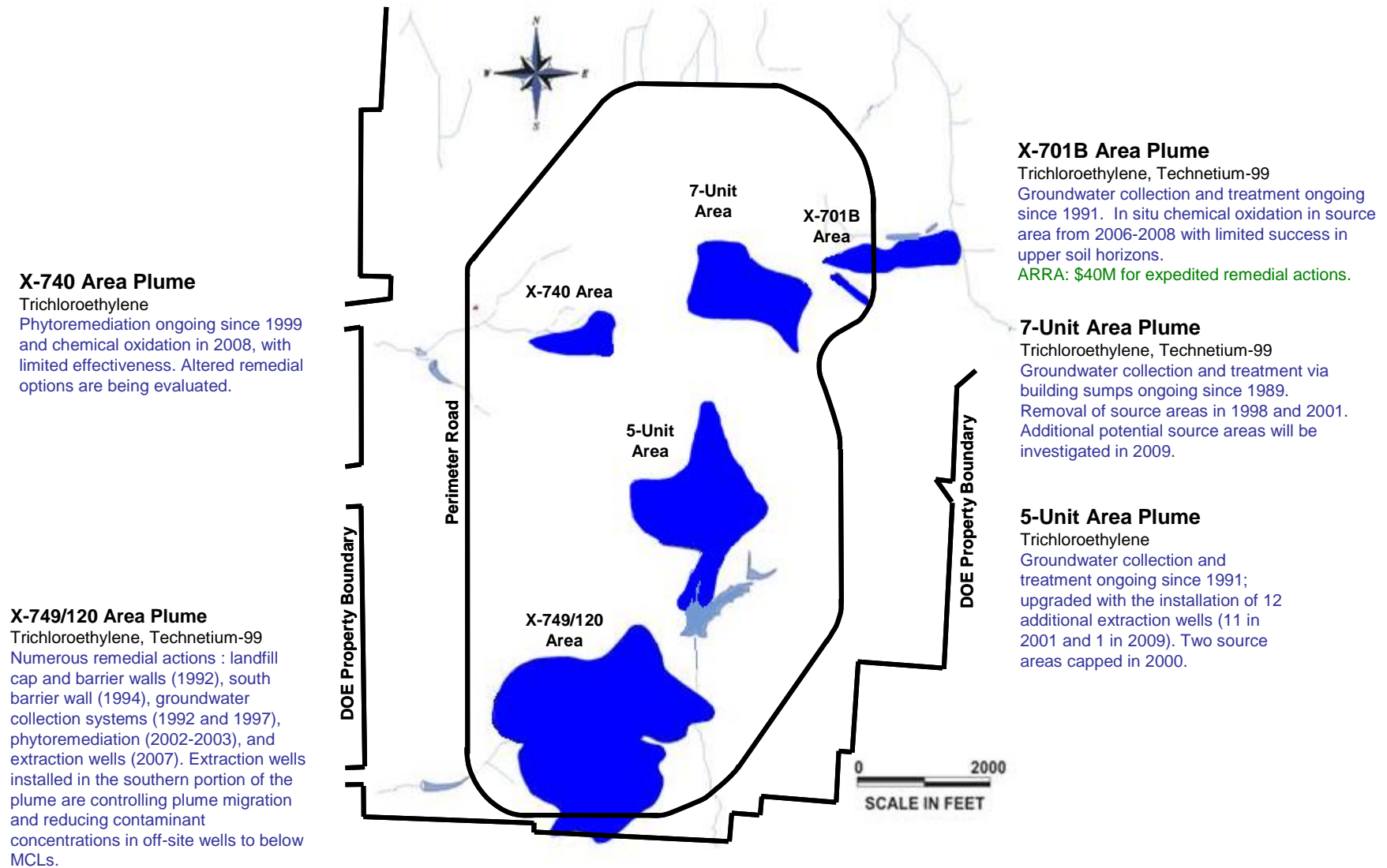
Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.

MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).
















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Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.




Portsmouth Gaseous Diffusion Plant: Plume Map









Portsmouth Gaseous Diffusion Plant: Plume Assessments




Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Portsmouth Plant	LATA/Parallax	5UA	PO-0040	TCE			Green		Yellow	Groundwater extraction wells are controlling plume and reducing concentrations of TCE, but not as effectively as predicted in Decision Document. An additional extraction well has been installed to address source beneath an existing building (deferred unit).
Portsmouth Plant	LATA/Parallax	7UA	PO-0040	TCE, Tc			Green		Green	Contaminant migration is being controlled by building sumps. Primary sources have been removed. An investigation of potential additional sources is underway.
Portsmouth Plant	LATA/Parallax	X-701B	PO-0040	TCE, Tc			Green		Yellow	Chemical oxidation has removed TCE from upper soil horizons, but does not appear to have affected contaminant concentrations in lower clay soil horizons or in groundwater. Additional removal action is being funded under ARRA.
Portsmouth Plant	LATA/Parallax	X-740	PO-0040	TCE			Green		Red	Phytoremediation (ongoing since 1999) and chemical oxidation (2008) have not affected TCE concentrations in groundwater. Alternate remedies for this area are being considered.
Portsmouth Plant	LATA/Parallax	X-749/X-120	PO-0040	TCE, Tc			Green		Yellow	Installation of extraction wells near reservation boundary is controlling the migration of the groundwater plume such that the plume is now contained on site. Phytoremediation may not be performing optimally. Barrier walls and collection trenches around landfills are performing as expected.




Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.

Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

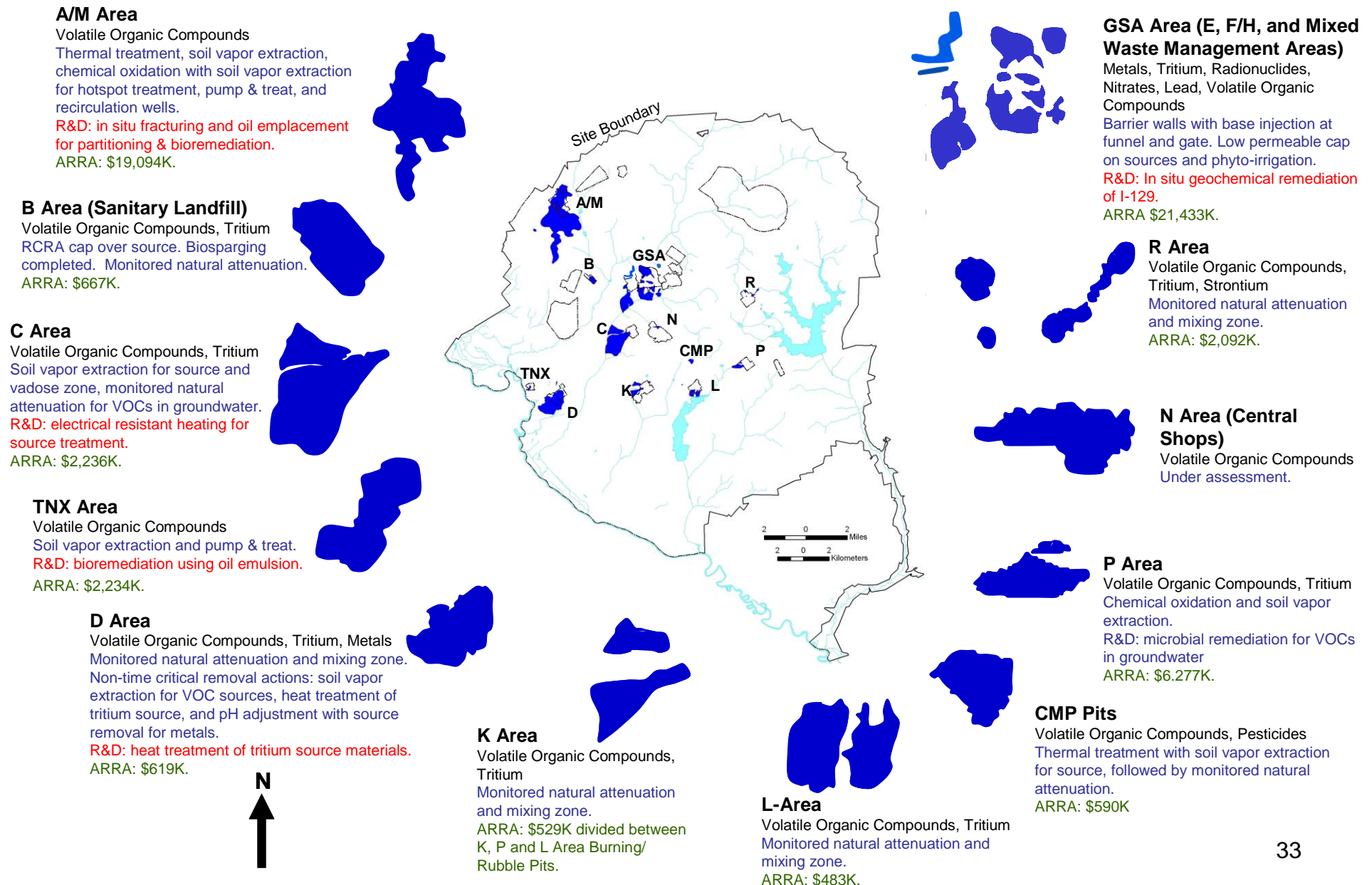
Source:  = Active,  = Controlled,  = Not Present

Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.
MCL=maximum concentrations level (levels are promulgated standards). ACL=alternate concentration limit (levels are negotiated).

Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).


































Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.

Savannah River Site: Plume Map









Savannah River Site: Plume Assessments




Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Savannah River Site	WSRC	A-Area Burning/Rubble Pits/Misc. Chemical Basin	SR-0030	PCE, TCE, DCE			Yellow		Green	Recirculation wells operating under interim action. MNA proposed as final action. Plume size increasing slightly while contaminant mass decreasing. Administratively, this plume has been incorporated with the A/M Area Groundwater under RCRA.
Savannah River Site	WSRC	A/M Area Groundwater	SR-0030	PCE, TCE			Yellow		Green	Steam stripping, SVE, P&T, and recirculation wells. R&D: Fracturing and oil emplacement. Final actions TBD. Remediation time and cost will be very high unless alternative technologies are effective.
Savannah River Site	WSRC	C Area Burning/Rubble Pits	SR-0030	TCE, DCE, VC			Green		Green	Monitored natural attenuation (MNA).
Savannah River Site	WSRC	C-Area Groundwater Operable Unit	SR-0030	TCE, Tritium			Yellow		NA	Assessment phase, final action TBD. R&D: TCE source treated by electrical resistance heating (ERH).
Savannah River Site	WSRC	Central Shops GW OU	SR-0030	TCE			Green		NA	Assessment phase, final action TBD.
Savannah River Site	WSRC	CMP Pits	SR-0030	PCE, TCE			Green		Green	MNA. Source will be treated via ERH.
Savannah River Site	WSRC	D-Area Groundwater	SR-0030	TCE, Tritium, Be, U			Yellow		NA	Assessment phase, final action TBD. Modeling shows MNA viable. R&D: high concentration metals treated by bioremediation.
Savannah River Site	WSRC	D-Area Oil Seepage Basin	SR-0030	PCE, TCE, DCE, VC			Green		Green	MNA/mixing zone. Revised mixing zone evaluation indicates degradation and falling concentrations.
Savannah River Site	WSRC	GSA Eastern	SR-0030	Tritium			Green		NA	Four primary sources removed. Final actions TBD.
Savannah River Site	WSRC	GSA Western	SR-0030	PCE, Tritium, I, Tc			Green		NA	Source control covers at two units. Final actions TBD.
Savannah River Site	WSRC	F Area Seepage Basins	SR-0030	Tritium, Cd, U, I, Sr, Tc			Yellow		Yellow	Base injection at funnel and gate, barrier wall. Alternate remedial strategies for I-129 under investigation, otherwise remediation will be very costly.
Savannah River Site	WSRC	H Area Seepage Basins	SR-0030	Tritium, Hg, I, Sr, Tc			Yellow		Yellow	Barrier wall. Alternative strategies for I-129 under investigation, otherwise remediation will be very costly.
Savannah River Site	WSRC	K Area Burning/Rubble Pit	SR-0030	TCE, PCE			Green		Green	MNA/mixing zone
Savannah River Site	WSRC	K Area Groundwater Operable Unit	SR-0030	PCE, TCE, Tritium			Yellow		NA	Assessment phase, final actions TBD.

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
Savannah River Site	WSRC	L Area Burning/Rubble Pit	SR-0030	Car. Tet.			Green		Green	MNA/mixing zone
Savannah River Site	WSRC	L Area Southern Groundwater	SR-0030	PCE, TCE, Tritium			Green		Green	MNA
Savannah River Site	WSRC	Mixed Waste Manag. Facility NE Plume	SR-0030	Tritium, TCE, DCE			Green		Green	Low permeability cap on source. MNA proposed as part of final action.
Savannah River Site	WSRC	Mixed Waste Manag. Facility NW Plume	SR-0030	Tritium, TCE			Green		Green	Low permeability cap on source. MNA proposed as part of final action, phytoremediation if needed at creek.
Savannah River Site	WSRC	Mixed Waste Manag. Facility SE Plume	SR-0030	Tritium, TCE			Green		Green	Low permeability cap on source. MNA proposed as part of final action.
Savannah River Site	WSRC	Mixed Waste Manag. Facility SW Plume	SR-0030	Tritium, TCE			Green		Green	Low permeability cap on source. Phytoremediation.
Savannah River Site	WSRC	P-Area Groundwater Operable Unit	SR-0030	PCE, TCE, DCE, VC, Tritium			Yellow		NA	Assessment phase, final action TBD.
Savannah River Site	WSRC	R Seepage Basin	SR-0030	Sr			Green		Green	MNA/mixing zone
Savannah River Site	WSRC	R-Area Groundwater Operable Unit	SR-0030	PCE, TCE, Tritium			Yellow		NA	Assessment phase, MNA proposed.
Savannah River Site	WSRC	Sanitary Landfill	SR-0030	PCE, TCE, DCE, VC, Tritium			Green		Green	Biosparging transitioned to MNA (first Alternate Concentration Limit approved in state of South Carolina).
Savannah River Site	WSRC	TNX	SR-0030	TCE			Green		Green	Interim P&T (air stripping). R&D: bioremediation using oil emulsion will be proposed as final remedy.

Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.




Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

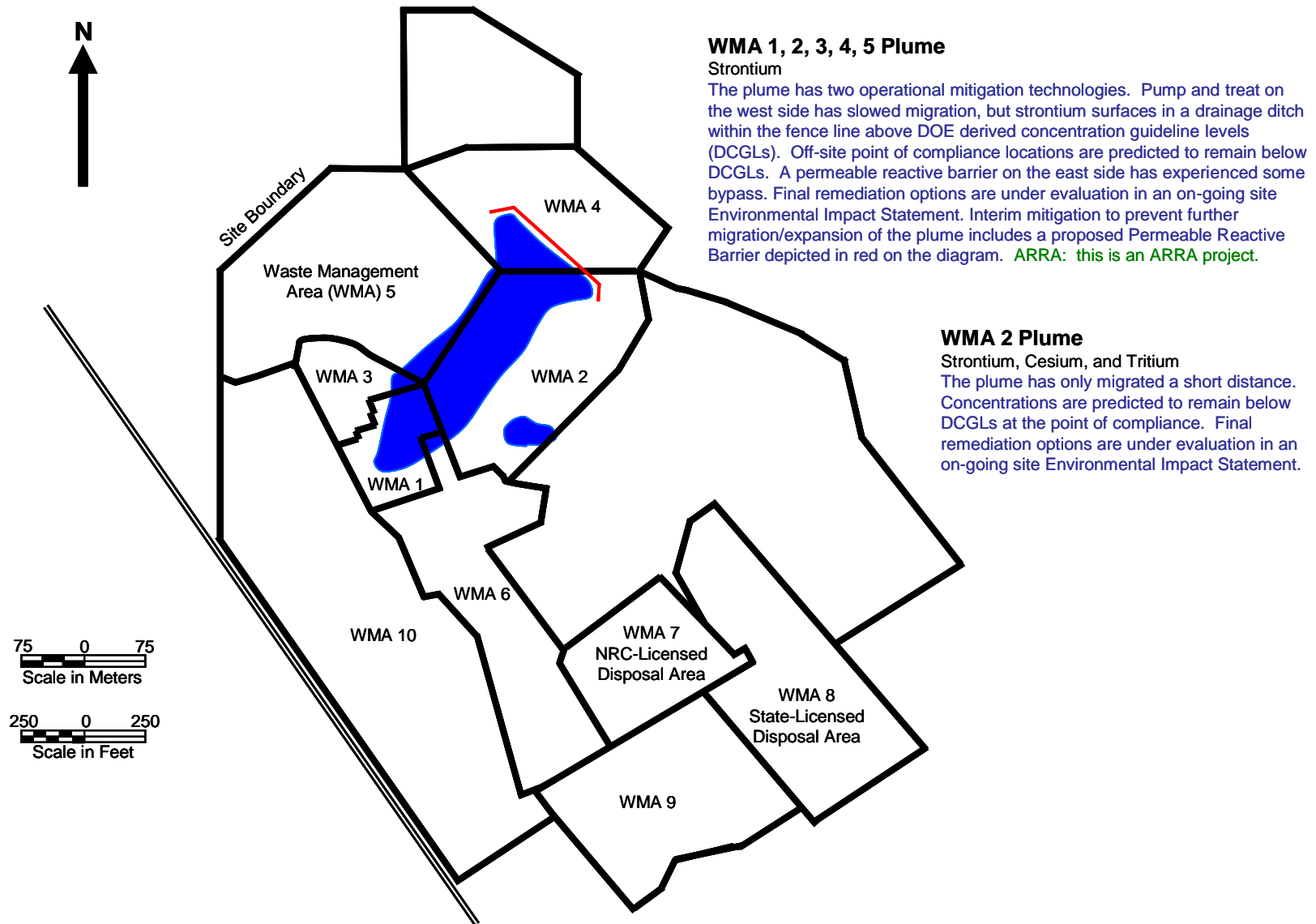
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



Regulatory Status:  = Assessment ongoing,  = Remedial approach proposed (i.e., Proposed Plan),  = Decision Document in place. Decision Documents are defined as legally binding agreements (i.e., RCRA or CERCLA Interim or Final Records of Decision, Permits, Closure Plans, Corrective Actions, Interim Actions).

Treatment Status: —Remedial approaches are not performing as identified in Decision Documents, —Remedial approaches are not performing optimally (as identified in Decision Documents), —Remedial approaches are performing as identified in Decision Documents.




West Valley Demonstration Project: Plume Map








West Valley Demonstration Project: Plume Assessments

Site	Contractor	Plume/Area	PBS#	Major Contaminants	Current Plume Size	Source	Plume Status	Regulatory Status	Treatment Status	Comments
West Valley Demonstration Project	West Valley Environmental Services	WMA-1,2,3,4,5	OH-WVDP-0040	Strontium, Cesium			Yellow		Yellow	Pump and treat and a small permeable reactive barrier have reduced contaminant levels, but the permeable reactive barrier has experienced some bypass. Final remediation options are under evaluation. A proposed permeable reactive barrier is being planned as an ARRA project at this location.
West Valley Demonstration Project	West Valley Environmental Services	WMA-2	OH-WVDP-0040	Strontium, Tritium, Cesium			Yellow		Yellow	Plume consists of a non-mobile cesium and mobile strontium and tritium. The plume has only migrated a short distance. At the point of compliance, contaminants predicted to remain below negotiated levels. Final remediation options are under evaluation.



Major Contaminants: Contaminants in plume that required, currently require, or may require remediation.




Plume size (Current):  = Greater than 320 acres,  = 40 to 320 acres,  = Less than 40 acres

Source:  = Active,  = Controlled,  = Not Present

Plume Status: —Contaminants above MCLs/ACLs are currently offsite or projected to migrate offsite, —Plume is expanding but is not expected to migrate offsite above MCLs/ACLs, —Plume is static or shrinking in size.

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